



HAZARDOUS MATERIALS SUMMARY REPORT

**225-227 Beaver Street
240 Beaver Street
Waltham, Massachusetts**

Prepared for:

**City of Waltham
119 School Street
Waltham, MA 02451**

January 2020

CDW Project # 1830.10



TABLE OF CONTENTS

Contents

1.0	INTRODUCTION.....	3
2.0	GENERAL SITE DESCRIPTION.....	3
3.0	ASBESTOS SURVEY.....	7
3.1	Methods	7
3.2	Findings	8
3.3	Other Observations	13
3.4	Recommendations	14
4.0	LEAD-BASED PAINT	15
4.1	Methods	15
4.2	Findings	15
4.3	Recommendations	17
5.0	OTHER HAZARDOUS MATERIALS (OHM) SURVEY	18
5.1	Methods	18
5.2	Findings	18
5.3	Other Observations	19
5.4	Recommendations	20
6.0	LIMITATIONS	20

Figures

Figure 1: Site Plan 240 Beaver Street

Figure 2: Site Plan 225-227 Beaver Street

Appendices

Appendix A: Asbestos Laboratory Data Sheets – CDW (2019)

Appendix B: Lead Paint Laboratory Data Sheets – CDW (2019)

Appendix C: ATC - Pre-Demolition/Renovation Asbestos Survey 240 Beaver Street
Waltham, MA (2016)

Appendix D: ECS – Limited Asbestos and Lead Paint Inspection, Waltham Research Station,
Main Barn, Calf Barn, and Garage (2009)

Appendix E: UMass Amherst - Waltham Station Lead Paint Sampling – Administration
Building (2018)



1.0 INTRODUCTION

CDW Consultants, Inc. (CDW) is pleased to present this report summarizing the findings of the suspect asbestos-containing materials (ACM) and lead-based paint (LBP) inspection of both 240 Beaver Street (Parcel #1) and 225-227 Beaver Street (Parcel #2) properties located in Waltham, Massachusetts. In addition, CDW performed a visual inspection of the Site buildings for the presence of other types of oil and/or hazardous materials, residues and containerized waste.

CDW initially reviewed existing documents summarizing prior building hazardous materials survey of all structures on both properties and performed visual assessment to confirm current conditions and quantities of confirmed ACM, LPB, and other hazardous materials and/or containerized wastes.

CDW reviewed the following reports:

- "Pre-Demolition/Renovation Asbestos Survey 240 Beaver Street, Waltham, MA prepared by ATC Group Services in November of 2016 to confirm the presence of previously documented ACM.
- Limited Asbestos and Lead Paint Inspection, Waltham Research Station, Main Barn, Calf Barn, and Garage (2009).
- "Waltham Station-Lead Paint Sampling" (Lead Analysis Results Table) completed by University of Massachusetts Amherst Environmental Health and Safety Department in January of 2018. The report summarizes the results of lead determination sampling completed throughout the Administration Building via X-Ray Fluorescent (XRF) analysis.
- "Waltham Experiment Station" prepared by University of Massachusetts Amherst employees in January 2010 to confirm building materials and square footage of structures presently in a collapsed or deteriorated state.

The afore mentioned documents were used to identify, clarify or confirm the presence of ACM and LBP in building materials during the on-site assessment by CDW in November 2019 and January 2020.

1.0 GENERAL SITE DESCRIPTION

2.1 240 Beaver Street Waltham, MA (Parcel 1)

The Parcel 1 section of the property consists of an Administration Building, Grey Workshop Building, Boiler House, Corn Laboratory, Greenhouses, a research area, small community garden plots, and agricultural fields. This parcel is bordered by Beaver Street to the north, a baseball field and Waverly Oaks road to the east and southeast, Marianne Road to the south, and Linden Street Residential Properties at Linen Circle and Floral Circle to the west.

Both the administration building (office space) and several of the functioning greenhouses are occupied by Waltham Fields Community Farm. The UMASS maintenance department also occupies an office in the administration building and uses the basement area of the Gray Building as a workshop and small repairs.



The Parcel is accessible from Beaver Street via three gravel driveways which provide access to parking along the east, west, and south side of the Administration Building and the eastern side of the Gray Workshop Building.

ADMINISTRATION BUILDING

The Administration Building is located closest to Beaver Street. The administration Building is a three-story structure and consists of approximately 15,000 gross square feet of finished space. The structure is constructed of a brick and concrete shell with a tar and gravel style roof. The interior finishes consist of masonry concrete block exterior walls and plaster interior walls and ceilings. Vinyl composite floor tile in varying sizes covers the floor on the 1st and 2nd levels with a painted concrete floor throughout the ground level. This includes the auditorium area which makes up approximately 5,000 square feet and is currently used as storage by the Waltham Fields group. Within the auditorium area is the large duct system which connects to other sections of the building. The building is heated by steam which originates at the natural gas-powered Boiler House and is piped into the building via a tunnel system.

GRAY BUILDING

The Gray Building is located approximately 100 feet to the east of the administration building closest to Beaver Street. The Gray Building is a two-story structure measuring approximately 3,100 square feet of finished space. The exterior is wood shingled with an asphalt shingled roof. The interior has several varieties of vinyl composite floor tiling, mudded plaster walls and ceilings, wooden doors, door frames, moldings and window casings throughout. The Workshop/Basement area can be accessed by an overhead garage door on the east side. This workshop area serves as maintenance facility for equipment and small engine repairs for the University of Massachusetts Amherst Maintenance staff. It has a concrete floor with drainage and painted CMU block walls. The upper levels have been used mostly as laboratory space for analyzing soils, photography, etc. The state of the building prevented any further investigation of the roof as several areas have been weather or water damaged and is visually evident amongst the upper levels.

BOILER HOUSE

This approximate 800 square foot building is constructed of concrete and brick veneer. The Boiler House is home to the Natural Gas fired boilers which serve as the heat source for all the buildings on Parcel 1. This boiler produces steam heat which is channeled underground throughout the system via a main steam line connected directly to the Gray Building. The Boiler House also has an attached incinerator room located on the ground level which is connected directly to the chimney (smokestack).

The steam is then forced from the Gray Building and split through the tunnel system between the Greenhouses on to the Corn Lab. The Main Administration Building is serviced by its own dedicated steam pipe which is tunneled directly into the building from the Boiler House.

In the Boiler House, asbestos containing materials have been identified in previous sampling events, both within the chimney/smokestack and the associated breaching (incinerator to chimney) in the form of rope gasket. The chimney itself and associated venting was inaccessible for visual inspection. CDW was not able to ascertain the location of subsurface steam pipes but assumes that any subsurface steam pipes are asbestos wrapped.



CDW did not collect any samples for the presence of ACM in the Boiler Room and used data from previous inspections and sampling events to re-confirm any known or suspected ACM.

CORN LAB

Located to the east of the Gray Building, the Corn Laboratory is a one-story brick building measuring approximately 1,700 square feet. It has two (2) Greenhouses (Identified as Greenhouses 5A and 5B) attached to the main Brick Building which was used as an office and laboratory.

Greenhouse 5A is connected to the Corn Lab Building at the first floor and is constructed from a wood purlin framing system. The frame for this structure shows signs of failure that include cracked and sagging wood and rusted and sagging metal supports. Greenhouse 5B is connected to the Corn Lab Building at the basement level with the structure below grade. The roof is a modified glazing system with some wood showing signs of deterioration.

At the time of inspection, the Corn Lab and associated Greenhouses were surrounded by a chain link fence. Due to the deteriorated state of the structure it was determined that it was unsafe to enter the main building or the attached greenhouses. As a result, CDW personnel only performed a visual assessment from the outside and did not collect any samples for ACM or LBP during the hazardous materials survey.

2.2 225-227 Beaver Street (Parcel 2)

Parcel 2 (225-227 Beaver Street) is located on the northern side of Beaver Street and is also referred to as the "Northern Parcel". The property consists 58.74 acres of land and was transferred to the Commonwealth of Massachusetts in March of 1923. From that time, these properties comprise the University of Massachusetts Agricultural College Experiment Station. The parcel is bordered by the Fernald State School property to the north and by Waverly Oaks Road and Beaver Street to the south. Camp Cedar Hill lies to the west, with Waverly Oaks Road to the east.

The access to the property is via a gravel drive with an entrance on Beaver Street. The drive borders Camp Cedar Hill to the West and gradually rises in elevation to meet the group of structures. This area of the property consists of abandoned dairy farm buildings including a Farmhouse (former residence), Main Barn, Calf Barn, an associated garage and foundation structures for former buildings.

These structures are in disrepair and several have completely collapsed. The upland field west of the wetland was used for hay production and grazing. From aerial photographs of the area, the wet meadow and wetland areas were never developed.



FARMHOUSE

The Farmhouse is a two-story, duplex style, wood framed house with wood shingle siding and asphalt tile roof. The structure consists of approximately 5,856 sq./ft of finished space. Each side of the house includes a basement, 1st floor, 2nd floor and an attic. Hardwood floors run throughout with exception of the kitchen and bathrooms. The kitchen contains a 9" x 9" beige w/grey vinyl floor tile (w/associated mastic), with the bathrooms having a 12 x 12 tan w/pattern vinyl tile. Walls consist of a horse-hair type decorative plaster (some covered by particle board paneling), with wood molding/door frames. The ceilings are wire-mesh/plaster, excluding the 2nd Floor bathrooms which are comprised of a white cellulose tile.

The house is split down the middle by a shared brick wall and attached chimneys which run from the basement level to the roof. Each basement (2) has a cement floor and 3 walls made of block/cement with the fourth being the shared brick. During the assessment two (2) 275-gallon heating oil tanks were discovered (one in each side), it is estimated that they together contain approximately 50 total gallons of petroleum. Several water-heater tanks and HVAC system components were discovered in both sides of the basement during the time of inspection. Mold was present throughout the 2nd floor of the farmhouse, possibly due to water damage from a leak in the roof and damaged skylights.

MAIN BARN

From the visible material within the approximate 3,000 sq./ft footprint area of the collapsed structure it is assumed that the stable style building was constructed of wooden post and beam with panel siding and an asphalt shingle roof. The area surrounding the Main Barn was secured with a locked chain link fence due to the collapse of the building. The building appeared unsafe at the time of the site visit. No entry was made beyond the fence line. No oil or hazardous materials storage containers were observed through the fence. In previously published documentation, ACM was confirmed within the structure in the form of transite paneling and asphalt roofing shingles; however, no quantity had been established.

CALF BARN

The Calf Barn is a one-story wood-built structure with a loft and a transite shingle roof. The structure is collapsed and inaccessible due to a chain link fence. From a visual assessment the "Calf Barn" is an approximate 2,000 sq./ft building space, constructed of wooden post and beam with wooden panels and a gray square transite tile roof. CDW collected a sample of the corrugated roof tile which was stored inside the Calf Barn and which did not appear to be sampled during previous events.

GARAGE

The Garage structure is an approximately 700 sq./ft building located to the northeast of the Farmhouse. It is constructed on a concrete slab and consists of wooden post and beam with wood panel siding, an asphalt shingle roof and associated vapor barrier paper. During the assessment it was observed that the roof is mostly collapsed and it is surrounded by a chain link fence. It was observed from the exterior that a significant size pile of used rubber tires, small piles of stored/unused asphalt shingles and miscellaneous building materials including scrap metals were stored and left behind within the building and will need to be disposed of.



3.0 ASBESTOS SURVEY

3.1 Methods

The USEPA and Massachusetts Department of Environmental Protection (MassDEP) are responsible for developing and enforcing regulations necessary to protect the general public from airborne contaminants that are known to be hazardous to human health. They regulate ACM associated with renovation, demolition, and asbestos abatement projects via the National Emissions Standard for Hazardous Air Pollutants (NESHAP) Title 40 CFR Part 61 regulation. These regulations require that buildings be inspected for ACM prior to renovation/demolition projects. They stipulate that all friable ACM as well as non-friable ACM that are in poor condition or will be made friable by renovation or demolition activity be removed or otherwise appropriately abated before they are disturbed.

In November 2019, Mr. Alan Sundquist (Massachusetts DLS Inspector #AI900788) conducted an inspection for suspect ACM. An inspection is required by the United States Environmental Protection Agency (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAP), prior to scheduled building renovations. Samples of suspect materials were collected to confirm the presence or absence of ACM. Suspect materials were grouped into homogenous areas. A homogenous area is an area that is similar in color, texture and date of application. Hand tools were used to collect bulk samples which were promptly placed in sealed plastic bags using a unique numbering system. Samples were not collected of non-suspect materials, including wood, fiberglass, plastic/vinyl, ceramic, concrete, neoprene/rubber, glass, and carpeting.

The investigative work for the asbestos survey included conducting a visual inspection of physically accessible areas of the structure, reviewing plans and observe any vapor barriers, as well as the roof for suspect materials. Once the inspection was completed, the building components were categorized into homogeneous areas. These homogeneous areas included: surfacing materials, thermal system insulation, and miscellaneous materials. CDW collected bulk samples of different homogeneous suspect materials for asbestos analysis. The bulk samples were delivered under chain of custody to Asbestos Identification Laboratory, Inc. (AIL) of Woburn, Massachusetts, fully accredited asbestos analytical laboratories, analyzed the bulk samples utilizing Polarized Light Microscopy (PLM) in accordance with the requirements of 40 CFR Part 763, Subpart F. Samples analyzed to contain greater than 1% asbestos are to be treated as ACM as defined by the USEPA and MassDEP. A positive stop method was used – if one sample in a homogeneous group is positive then additional samples of the same material are not analyzed. The asbestos analytical reports are provided in Appendix A.

Previous inspection reports, documentation and analytical data were carefully reviewed to determine previously documented suspect and confirmed ACM. On November 20th, 2019 Mr. Alan Sundquist (Massachusetts Asbestos Inspector #AI 900788) conducted an onsite inspection for suspect materials.



3.2 Findings

CDW compiled the results of the recent field survey as a supplement to the information available from prior investigations.

PARCEL #1

Results of the Parcel #1 laboratory sampling performed by CDW are summarized in the next table:

Field ID / Laboratory ID	Description	Location	Result
ADMINISTRATION BUILDING			
1A,1B, 1C	Grey Fire Mortar	Behind Brick Facade- Administration Building	ND
549748, 549749, 549750			
GREY BUILDING			
11A, 11B, 11C	12"x12" White Tile w/Grey	Grey Building-Large Room	ND
538921, 538922, 538923			
12A, 12B, 12C	Tan Mastic	Grey Building- Large Room	ND
583924, 583925, 583926			
13A, 13B, 13C	White Ceiling Plaster	Grey Building-Large Room	ND
538927, 538928, 538929			
14A	9"x9" Maroon/Black Tile	Grey Building- Room 105	ND
538930			
15A	Black Vapor Paper (under 9x9 maroon/black tile)	Grey Building- Room 105	ND
538931			
16A	9"x9" Black Floor Tile	Grey Building-Room 105	ND
538932			
17A	Black Vapor Paper (under 9"x9" black floor tile)	Grey Building- Room 105	ND
538933			

A summary of the **CONFIRMED** positive for ACM findings sampling events performed by ATC (formerly ECS) are presented by building in the tables below:

Material Description	Location	Est. Quantity	Units
ADMINISTRATION BUILDING			
Pipe Fittings and Thermal Surface Insulation	On Steam and Hot Water Lines and Valves Throughout the Administration Building	2,567	LF
Black Soundboard Adhesive	Room 09A (Patch) and Room 202	40	SF



Brown Stick Pin Adhesive on Metal Ductwork	Auditorium, Room 019	200	SF
Residual Black Mastic	Room 03 Administration Building	100	EA
Residual Acoustical Ceiling Plaster (Blue and White) -- Left after Abatement was Completed	Room 019 Perimeter	10	LF
Gray with specks 9" x 9" Floor Tile and Associated Mastic	Room(s) 10, 12, 16, 101, 104, 119, 207, 207, 206, 212, 213,214	2,325	SF
Cream with Gray and Black Specks 12 x 12 Floor Tile and Associated Mastic	Hallway 099E and Room 19	3,548	SF
Brown 9" x 9" Floor Tile and Associated Mastic	Room 09 and 09A	200	SF
Brown 12" 12" Floor Tile and Associated Mastic	Hallway 099C and Hallway 099D	128	SF
Black with White Specks 12' x 12" Floor Tile and Associated Mastic	Hallway 199B	340	SF
Brown 9" x 9" Floor Tile and Associated Mastic	Room 102, 105, 108, 108A, 110, 112, 112A, 117, 118, 120, 121, 122, 124, Hallway 199D, 201, 202, 203, 204, 209, 210 Hallway 299B and 299C	3,911	SF
9"x 9" Floor Tiles and associated Mastic	Throughout, Halls Outside Auditorium and select offices on all levels	108,000	SF
Exterior Window Caulk	At Sides of Long Window Banks, Between Bank and Brick	115	LF
Exterior Window Glaze	Interior of Exterior Window Banks Throughout	115	EA
Square Pattern Linoleum on Counter	Room 101	30	LF
Transite Counter Tops, Sink Counter Tops and Stored Transite	Room 11, 214, 109 205	90	SF

SF=Square Feet LF =Linear Feet EA= Each

Material Description	Location	Est. Quantity	Units
GRAY BUILDING			
Gray with white Specks 9"x9" Floor Tile Associated Vapor Barrier and Associated Mastic	Room 105,202, 202A, 203, 203A, 204, 204A, 221, 221A, 1 st Floor Hallway, 1st Floor Bathroom, 1st Floor Storage, 2 nd Floor Hall, Small Room 2nd Floor Hallway	2,285	SF



Green/Blue Transite Boards	Room 105, 201, 203, 204 Basement Stairs to Sub-Basement	91	SF
Fume Hood Counter	Room 204	10	SF
Laboratory/Sink Countertops	1 st Floor Large Room, Room 201, 204	27	SF
White Sink Undercoating	Room 105	10	EA
Thermal Systems Insulation	Sub-Basement Pipe Chase into Greenhouse	~ 200	LF
Window Glazing Compound	Throughout	60	EA
Window Casing Caulking	Garage Exterior	6	EA
Black with White Streaks Countertop Sheet Goods	Room 105, Room 204	50	SF
(!)Decorative Plaster Skim	1 st Floor Large, Storage Room, Room 203,204	1,200	SF
(!)Cementous Coating Over Cork	Sub-Basement Cooler	550	SF
Brown Faux Tile Adhesive Behind Splash Guard	Basement	10	SF

SF=Square Feet LF =Linear Feet EA= Each (!)=Lab Data Indicates <1% Asbestos

Material Description	Location	Est. Quantity	Units
GREENHOUSES			
Thermal Systems Insulation	(Trenches)Greenhouse 3, 4, 5A, 5B, 6, 7, 8, 14	340	LF
Corrugated Transite Wall Panel Including Green/Blue Transite Board	Greenhouse 2, 9, 10, 11, 13	659	SF
Window Glazing Compound	Greenhouse 1-15	16,000	SF
Caulking	Between Small Shed and Greenhouse	100	SF
Black Panel Adhesive	Greenhouse 6	110	SF
Yellow Foam Insulation Adhesive	Greenhouse 13, 14, 15	460	SF
Sink Undercoat	Exterior Between Greenhouse 8 and 15	5	SF

SF=Square Feet LF =Linear Feet EA= Each



Material Description	Location	Est. Quantity	Units
CORN LAB			
Gray with White Streaks 9" x 9" Floor Tile and Associated Mastic	Main Room, Entry and Bathroom	270	SF
(?) Stored Transite Board (Presumed)	Basement	2	SF
(?) Stored Corrugated Transite Panels	Exterior of Greenhouse	30	SF
Door Casing Caulking	Front Door and Door Leading to Greenhouse	2	EA
Gray Sink Undercoating	Main Room	1	EA
(?) Window Glazing Compound	Corn Lab Greenhouse	760	LF

SF=Square Feet LF =Linear Feet EA= Each (?)= Presumed to be Asbestos Containing

Material Description	Location	Est. Quantity	Units
PESTICIDE SHED			
Window Glazing Compound	Throughout	546	LF

LF=Linear Feet

Material Description	Location	Est. Quantity	Units
BOILER HOUSE			
Door Casing Caulking	Throughout	2	EA
Exterior Window Casing and Glazing Compound	Throughout	7	EA
TSI Roping around Metal Breeching (Smokestack Exterior)	Exterior of Building	20	LF
Gaskets Associated with Steel Boiler Breeching	Boiler Room	50	LF
Insulation between steel walls of incinerator and suspect components	Incinerator Room	190	SF
(?) Stored Boxes of Floor Tiles	Sub-Basement Pipe Chase into Greenhouse	2	Boxes

SF=Square Feet LF =Linear Feet EA= Each (?)= Presumed to be Asbestos Containing



PARCEL #2

Results of the Parcel #2 laboratory sampling performed by CDW are summarized in the below table:

Field ID / Laboratory ID	Description	Location	Result
FARMHOUSE			
1A, 1B, 1C 538895, 538897, 538897	Sheet Rock w/Paint	2 nd Floor Left	ND
2A, 2B, 2C 538898, 538899, 538900	9 x 9 Beige w/Grey Floor Tile	Kitchen	ND
3A, 3B, 3C 538901, 539902, 538903	Brown Mastic	Kitchen	ND
4A 538904	Black Paint	Basement Wall	ND
5A, 5B, 5C 538905, 538906, 538907	Ceiling Plaster	1 st Floor Bedrooms	ND
6A, 6B, 6C 538908, 538909, 538910	Ceiling Plaster – White	Kitchen	ND
7A, 7B, 7C 538911, 538912, 538913	Ceiling Plaster- Brown	Kitchen	ND
8A, 8B, 8C 538914, 538915, 538916	White Ceiling Tile	2 nd Floor Bath	ND
9A 538917	Tan Floor Tile	2 nd Floor Bath	ND
CALF BARN			
10A, 10B, 10C 538918, 538919, 538920	Grey Corrugated Roof Tile/Paneling	Calf Barn Roof	Detected Chrysotile 20%

SF= Square feet



The confirmed ACM location and quantity from the survey completed in November 2019 is presented below:

Confirmed ACM Materials			
Material Description	Sample Location	Est. Approximate Quantity	Units
Grey Corrugated Roof Tile/Paneling	Calf Barn (stacked inside)	1,000	SF

SF= Square feet

A summary of the confirmed positive for ACM findings and quantities performed by ATC (formerly ECS) are presented in the below table:

Material Description	Location	Est. Quantity*	Units
FARMHOUSE			
Linoleum Flooring	Pantry/Kitchen Area	1,200	SF
MAIN BARN			
Transite Paneling	Throughout	Unknown	SF
Asphalt Roof Shingles	Exterior of Building	Unknown	SF
CALF BARN			
Square Transite Roof Shingles	Exterior	5,000	SF

* CDW estimated quantity based on visual assessment and available data

SF= Square feet

Tables including all suspect materials which were analyzed and were found not to contain asbestos can be found within the ATC Inspection report in Appendix C.

3.3 Other Observations

Other observations during CDW's survey include:

- Due to the current state of the Main Barn, Calf Barn and the Garage Building it is possible that additional suspect materials may be uncovered throughout the course of performing work or disposal activities.



- No samples of the roof were collected from the administration building due to limited scope therefore it should be assumed ACM until which time definitive sampling can be completed.
- Both the “Waltham Experiment Report” (produced by UMASS in 2010) and the Inspection report published by Environmental Compliance Services (ECS) in 2009 eludes to the confirmed presence of asbestos being found within the Farmhouse in the form of a Linoleum floor. It also mentions ACM containing transite panels and asphalt roof shingles associated with the Main Barn structure, though no quantities were given.
- Since only limited destructive sampling was performed CDW also believes that ACM could also be present in an underlying floor leveler or “Levelastic” which could be present beneath both flooring and mastic within several of the structures.
- CDW was not able to inspect foundation for coating “mastic” due to inaccessibility to the subsurface.
- The brick within the incinerator structure is assumed to be “fire brick” and likely to be ACM. The collected ash residue should also be considered hazardous.

A summary of the assumed positive ACM is presented in the table below:

Material Description (Assumed)	Location	Est. Quantity	Units
Roofing Material	Administration Building	15,000	SF
Incinerator Brick	Boiler House	Unknown	SF
Ash Residue (associated waste from incinerator)	Boiler House (Incinerator)	3	Tons

SF= Square feet

3.4 Recommendations

CDW has confirmed the presence or likely presence of ACM within buildings at the Site and has developed preliminary quantities for abatement.

Since many of the structures were collapsed or deemed unsafe to enter during CDW’s time onsite it is recommended that selective demolition and segregation of building materials take place before any type of disposal. Given the state of the structures it is difficult to estimate a quantity of the materials before work to segregate all other building materials takes place.

CDW recommends that a selective demolition and abatement plan or possible “non-traditional workplan” be created for abatement of asbestos. This calculated process would allow for a more efficient disposal process and avoid unnecessary expenses. Such expenses could occur due to the cross contamination of construction waste and subsequent fees associated with disposal. A “non-traditional work plan” would most likely focus on the more deteriorated structures on the property such as the



Greenhouses or Corn Lab Building. Performing work under a MassDEP approved workplan would allow for the segregation of positively identified hazardous materials and allow the possibility to dispose of them separately as an alternative to disposing of the entire structure as hazardous material.

ACM that will be impacted by renovation or demolition work must be removed before they are disturbed. This work must be conducted in accordance with a project design as prepared by a licensed Asbestos Abatement Project Designer. This report is not intended for use as an abatement design. Prior to disturbance, the ACM identified must be abated by a Commonwealth of Massachusetts-licensed asbestos abatement contractor following all federal, state & local regulations governing asbestos abatement. A copy of the Asbestos Waste Shipment record must be received within 30 days of removal from the Site. Asbestos air quality sampling must be conducted under USEPA regulations following asbestos abatement and prior to re-occupancy of the spaces.

During the course of renovation or demolition work, it is possible that additional suspect ACM will be encountered. Contractors should be apprised to conduct any such work in a controlled manner. If suspect materials that have not been sampled are encountered, they should be assumed to contain asbestos, unless appropriate sampling and analysis indicates otherwise.

If any identified ACM will remain in place, then the ACM should be managed under an Operations and Maintenance Plan (O&M Plan) so that they are not inadvertently disturbed. The O&M Plan would include establishing a Program Manager, recordkeeping, employee and contractor notifications, periodic surveillance and training requirements.

4.0 LEAD-BASED PAINT

4.1 Methods

CDW performed a visual inspection of painted surfaces. CDW collected samples of paints on various types of building component substrates. Samples were submitted to Pro-Science Laboratories in Woburn, Massachusetts for analysis via atomic absorption spectrometry (AAS). The lead paint analytical reports are provided in Appendix B.

4.2 Findings

In November 2019, CDW collected select samples of paint to determine the potential presence of lead. The results of the laboratory analysis are provided in the below table:

Sample ID/ Lab ID	Substrate	Location	Lead Concentration (% Weight)
LP-1	Black Paint	Farmhouse Basement Wall	<RL
C 638190			



Sample ID/ Lab ID	Substrate	Location	Lead Concentration (% Weight)
LP-2	White Paint on Molding and Stairs	1 st Floor Farmhouse	0.27
C 638191			
LP-3	White Ceiling Paint	Grey Building/Large Room	<RL
C 638192			
LP-4	White Paint on Walls	Grey Building/Large Room	<RL
C 638193			
LP-5	Blue Paint on Walls and Door	Grey Building Room 203	0.32
C 638194			
LP-6	Gray Paint on Door and Molding	Grey Building Room 204	0.26
C 638195			
LP-7	Black Paint on Molding and Stairs	Grey Building 2 nd Floor Hallway	0.069
C 638196			

The analytical results from the limited survey conducted by CDW detected concentrations of lead in three (3) of the seven (7) samples collected. The USEPA defines LBP as any paint or surface coating that contains lead equal to exceeding one milligram per square centimeter (1.0 mg/cm²) or 0.5% by weight. The OSHA lead-in-construction standard defines lead containing paint (LCP) as a paint or coating containing any detectable level of lead.

A previous Lead-Based Paint sampling event was conducted by ECS on August 10th, 2009. This survey took place before some or most of the structures had completely collapsed and therefore were more accessible for collection.

Below are the results from the August 10th, 2009 lead paint inspection event:

Sample ID (Lab ID)	Description	Location	Lead Concentration (% Weight)
W-1	White Paint on Wood Trim Around Doors and Windows	Garage	6.84
C 341029			
W-2		Main Barn	25.79



Sample ID (Lab ID)	Description	Location	Lead Concentration (% Weight)
C 341030	White/Tan Large Door Frame Paint		
W-3 C 341031	Green Entrance Door Paint	Main Barn	10.24
W-4 C 341032	Green Window/Door Frame Paint	Calf Barn	23.93
W-5 C 341033	White Interior Window Frame Trim Paint	Calf Barn	0.22
W-6 C 341034	Orange Entrance Door Paint	Calf Barn	0.02
W-7 C 341035	Brown Interior Window Frame Trim Paint	Calf Barn	0.57
W-8 C 341036	White Interior Wall Paint	Calf Barn	32.15
W-9 C 341037	White Trim Paint on Basement Door Frame	Main Barn	36.24
W-10 C 341038	Brown Exterior Siding Shingles	Main Barn	0.07

Six (6) of the ten (10) samples for Lead Based Paint were observed and tested for concentration greater than one milligram per square centimeter (1.0 mg/cm²) or 0.5% by weight.

The results of the 2009 Lead Paint survey by ECS can be found in Appendix D. This testing was done via the XRF method which can be known to emit false positives during field testing. CDW would recommend that before any large-scale demolition or construction, any areas above the action level (1.0 mg/cm²) be resampled and submitted to a lab for analysis via atomic absorption spectrometry (AAS) method.

4.3 Recommendations

Based on the conclusions of this testing, the following recommendations are offered:

- Removal of the LBP is not required. However, in accordance with the EPA Lead Renovation, Repair, and Painting (RRP) Rule 40 CFR 745, workers, students, visitors and the public must be protected from lead dust generated during the demolition of LBP or LCP coated surfaces.
- Components identified to contain the presence of lead should not be disturbed in an uncontrolled manner. Disturbance of these materials should only be done by properly trained



personnel in a controlled and documented manner to allow for the safety of the workers, bystanders and proper disposal of waste materials.

5.0 OTHER HAZARDOUS MATERIALS (OHM) SURVEY

5.1 Methods

CDW visually inspected the Site building for universal, special and hazardous wastes associated with building materials. The survey was intended to identify and quantify materials such as: mercury-containing light tubes, PCB-containing light ballasts, mercury containing thermostats and switches, lead and tritium batteries, refrigerants and other hazardous materials. No hazardous materials sampling or analysis was conducted as part of this survey.

5.2 Findings

The OHM identified were as follows:

Material Description	Location	Est. Quantity	Units
ADMINISTRATION BUILDING			
Compact Incandescent Bulbs	Throughout	36	EA
Fluorescent Bulbs (Mercury) and LED Bulbs (Arsenic and Lead)	Throughout	357	Bulbs
Electronic Light Ballast	Throughout	159	Each
Thermostats and Switches (Mercury)	Throughout, Mechanical and HVAC	2	Ampules
Emergency Light Batteries (Lead)	Throughout	ND	EA
Fire Extinguishers (Compressed Gas)	Throughout	3	EA
Exit Signs (Tritium)	Throughout	6	EA
Older Door Retractors (Hydraulic Fluid)	Doors	6	EA
Heat Detectors (mercury)	Throughout	ND	EA



Material Description	Location	Est. Quantity	Units
GRAY BUILDING			
Compact Incandescent Bulbs	Throughout	14	EA
Fluorescent Bulbs (Mercury) and LED Bulbs (Arsenic and Lead)	Throughout	109	Bulbs
Electronic Light Ballast	Throughout	55	Each
Thermostats and Switches (Mercury)	Throughout, Mechanical and HVAC	1	Ampules
Emergency Light Batteries (Lead)	Throughout	-	EA
Refrigerants Associated with HVAC	Throughout	-	Gallons
Fire Extinguishers (Compressed Gas)	Throughout	1	EA
Refrigerants Associated with Water Bubblers	Throughout	-	Gallons
Exit Signs (Tritium)	Throughout	-	EA
Heat Detectors (mercury)	Throughout	-	EA
Asbestos Blanket	Throughout	2	EA
BOILER HOUSE			
Ash (associated with incinerator)	Incinerator	3	Tons
FARMHOUSE			
Above Ground Storage Tank	Basement	2	275 Gallons
Heating oil	Basement	50(total)	Gallons

5.3 Other Observations

Access was limited in areas and buildings considered unsafe. It is possible that via further inspection of collapsed buildings additional hazardous materials will be discovered.

- During visual inspection within the Gray building CDW came across multiple chemicals that are used during the development process of photos. Since no sampling of this media was performed it should be assumed hazardous until the point when additional sampling can be



performed to determine otherwise. Many of the chemicals used during this process can be harmful and highly toxic via skin contact, inhalation or ingestion.

- Any other miscellaneous materials found stored within the structures should be disposed of as Universal Waste where applicable.

5.4 Recommendations

The OHM identified were as follows:

Items listed in the OHM table, if no longer in use, should be recycled or disposed of in accordance with state and federal regulations.

6.0 LIMITATIONS

The conclusions are limited to the information available at the time of the field survey and the scope of services, as defined. No subsurface soil or groundwater sampling and analysis was performed under this task. Where access to portions of the Site or to structures on the site was unavailable or limited, CDW renders no opinion as to the presence of hazardous material or the presence of indirect evidence related to hazardous material in that portion of the site or structure. This report cannot be solely relied upon for renovation or demolition. The sampling performed forms the basis for conclusions expressed and areas inaccessible for testing limits those conclusions. No other conclusions, interpretations or recommendations are contained or implied in this report other than those expressed. While CDW followed industry standards during the inspection, we do not warrant that all suspect hazardous building materials were identified in or on the buildings and shall not be held liable related to future abatement costs related to hazardous materials that are either not discovered or not appropriately characterized. This is due in part to inherent problems with every building inspection, such as, but not limited to:

- Seemingly homogeneous materials that are not in fact homogeneous;
- Seemingly representative locations that are not in fact representative;
- Layered materials that are not uniformly present or are isolated;
- Materials that are present and accessible but were not considered to be hazardous,
- Materials that are present in an isolated and limited quantity; and
- Material that is present in locations that are unsafe or otherwise difficult to access.

Client acknowledges that CDW's inspection is limited and all hazardous materials may only become apparent during future demolition. Additional hazardous materials or materials suspected of being hazardous should be assumed to be hazardous unless appropriate evaluation or sampling and analysis demonstrate otherwise. No other use of this report is warranted without the written consent of CDW Consultants, Inc.